REMARKS/ARGUMENTS

In response to the Non-Final Rejection mailed June 24, 2005, applicants have amended claims 51 and 52, presented new claims 58-60 and the following remarks.

The specification was objected to by not indicating the priority documents at the beginning of the specification. A paragraph providing the information has been added in the amendment above.

The specification was objected to as using trademarks without capitalization. Specifically AGAROSE and SEPHADEX were noted. This objection is respectfully traversed. Agarose is not trademarked. A brief check of the USPTO's trademark database did not reveal a trademark for the term agarose. As for Sepahdex®, the term has the first letter capitalized and a symbol indicating the term is a trademark. Accordingly, it is properly indicated to be a trademark as indicated by MPEP 608.01(v).

Claims 52 and 53 were rejected under 35 USC 112, second paragraph as being indefinite by lacking antecedent basis for "said product". Claims 52 and 51 have been amended to clarify and consistently use the term "polypeptide" throughout.

Claims 51-57 were rejected under 35 USC 103 as being unpatentable over Hawkins et al, Fiedler et al, Caspar et al, Tang et al and Hakim et al. Hawkins et al is cited to producing a single chain antibody (scFv) wherein the domains are linked together. Fiedler et al is cited to show producing scFv in plant cells. Caspar et al is cited to show using scFv to induce an immune response. Tang et al is cited to show using different linkers in phage display scFv. Hakim et al is cited to show fusion proteins inducing an anti-idiotype immune response. From these the examiner considers it obvious to express a scFv gene containing random linkers in plants to produce a scFv polypeptide as a vaccine for inducing an immune response. This rejection is respectfully traversed.

Several features in the present claims are not taught or suggested by any of the five references. Furthermore, certain aspects of the references relied upon by the examiner are irrelevant to the present invention. First, none of the references disclose "a transient plant expression vector". Second, none of the references disclose its transfection into a plant (step d). Third, none of the references disclose, "the plant transiently produces the polypeptide". Fourth, none of the references discloses producing a polypeptide vaccine (inducing an antiidotypic immune response) in a plant cell. Along the same lines, new claim 59 recites expression "in the cytoplasm" of a plant cell, a feature being taught or suggested by any reference.

The only reference mentioning producing anything in plants is Fiedler et al, which produces scFv in second generation transgenic plants. No "transient" plant expression vector is used anywhere. Fiedler et al uses Agrobacterium tumefaciens to permanently transform a plant cell rather than a virus to transfect the plant cell as in the present invention. Fiedler et al's transgenic plant cells express the scFv gene in the nucleus, rather than the claimed cytoplasm, as is done by applicants' cytoplasmic replicating virus.

New claim 60 highlights this further by reciting that the vector spreads throughout the plant after transfecting. This does not happen when making transgenic plants using Agrobacterium tumefaciens.

These differences become important when one looks at what Fiedler et al actually produces and its abilities. Fiedler et al produce a binding protein (called a scFv), which binds to certain small organic molecules. There is no showing that their scFv is in "correctly-folded" form as claimed to mimics an idiotype so as to be useful as a vaccine to "induce an idiotype-specific immune response". These are different biological properties and therefore describing the recombinant scFv as "functionally active" is not the same activity.

Fiedler et al's protein has far less stringent requirements to merely bind to a small organic molecule. It need not be immunogenic at all. By contrast, the polypeptide in the claimed invention must mimic the complex structure of an idiotype on a B-cell lymphoma and induce an immune response against it. Therefore, no combination of the

applied references show that plant cells are even capable of being useful for producing polypeptides for the claimed invention.

Another significant difference can be seen in the claimed linkers. Since a scFv is an artificial molecule, a given linker may not be optimal or work at all for the purposes of forming a "correctly folded protein" as claimed. All of the references except Tang et al use one fixed linker, usually (Gly4Ser)3. Tang et al is not even concerned with obtaining a "correctly folded protein". Tang et al uses different linkers in phage display panning to obtain artificial recombinant scFv molecules with higher binding affinities, not to mimic the native three-dimensional configuration of the idiotype. Nothing in Tang et al is directed to making a product to induce an immune response; instead, Tang et al seeks a different biologically functional activity to make different molecules with unnaturally high binding affinities without any desire "to mimic a tumor epitope in its native form in or on said tumor cell".

Additionally, Tang et al produces a different randomized library of linkers with different properties. The claimed linkers "vary in size and sequence". The randomized linkers in Tang et al's library have the formula (SNN)18, which codes for exactly 18 amino acid residues. Their library cannot vary in "size" as recited in the claimed library. Note some claims recite between one and 50 residues.

Furthermore, the Tang et al linker formula (SNN)18 includes S = A, G or C and N = A, G, C or T. By contrast, the claimed linkers recite certain restrictions on the amino acid sequence for each repeated triplet. For example claim 57 recites a triplet of (A or G) (C or G)(T). Based on sequence, this is a subset of the Tang et al library.

By teaching a linker library differing in number of residues and triplet sequences and for different purposes from the claimed invention, Tang et al does not compensate for the deficiencies of the other references using a single linker.

Yet another significant difference may be seen in the polypeptide produced and its immunogenic properties. These differences are reflected in the claims requiring the polypeptide be correctly-folded and inducing an idiotype-specific immune response. New claim 58 further highlights this by reciting that "the idiotype-specific immune response" is induced "without a need for an adjuvant or other immunostimulatory material."

The only references to show a product being used to induce an anti-idiotype immune response are Casper et al and Hakim et al. Hawkins may wish to but lacks the details to indicate results in the relatively unexpected field of cancer treatment with vaccines. The Casper et al and Hakim et al vaccine products are either scFv protein fused to a GM-CSF protein or an IL-1B peptide or scFv protein chemically conjugated to KLH or a non-protein product, naked DNA encoding scFv. The other components act as adjuvants or immunostimulatory materials. In every situation, the scFv protein is never used alone.

The present invention uses a scFv alone without the use of adjuvants or other immunostimulatory materials to obtain the claimed desired results. The other claims make a scFv by different process and in a different host. Accordingly, the polypeptide product has different properties. Such properties are not taught by any of the references and apparently not present as the references spent considerable effort adding components to obtain such desired results. Applicants attribute the different biological properties to the manner in which the polypeptide was prepared, which is claimed in claim 51. New claim 58 more specifically recites this feature.

Accordingly, this rejection should be withdrawn.

In view of the above amendments and comments, the claims are now in conditions for allowance and applicants request a timely Notice of Allowance be issued in this application.

If needed, applicants petition for sufficient extension of time for consideration of this paper.

The commissioner hereby is authorized to charge payment of any fees, including extension of time fees, under 37 CFR § 1.17, which may become due in connection with the instant application or credit any overpayment to Deposit Account No.500933.

Respectfully submitted,

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Enclosed: Petition for a Two-Month Extension of Time

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